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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/815,567

03/31/2004

Nigel C. Paver

MP1534

9397

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03/24/2008

MARVELL/FINNEGAN HENDERSON LLP

c/o FINNEGAN, HENDERSON, FARABOW, GARNETT et. al.

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EXAMINER

CRIBBS, MALCOLM D

ART UNIT

PAPER NUMBER

2115

MAIL DATE

DELIVERY MODE

03/24/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/815,567

**Applicant(s)**

PAVER, NIGEL C.

**Examiner**

MALCOLM D. CRIBBS

**Art Unit**

2115

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

## DETAILED ACTION

**Claims 1-23 are presented for examination.**

5 ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

10 (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15 Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gschwind et al [Publication No. US 2003/0217297] in view of Boutaghou et al [Patent No. US 5,732,215].

**As per claims 1, and 14**, Gschwind teaches the invention comprising:

circuitry on a first node, the circuitry connected to the chip:

20 monitoring one or more parts of the application by a sensor attached to the chip [Page 2-3 paragraph 0035; Page 2, paragraph 0018; wherein parts of the application [certain threads] running on the chip [core] are monitored while recording the thermal activity; wherein an application can consist of multiple threads wherein Gschwind teaches correlating notification events with threads and it would have been obvious to one of ordinary skill in the art to monitor parts  
25 [threads] of an application in order to correlate the notification events with the threads];

obtaining event data from the sensor [Page 3 paragraph 0036 -0038;  
wherein event data [temperature measurement obtained at the time of the  
notification event] is obtained];

for at least one of the parts of the application, correlating the event data  
5 with the parts of the application [Page 5, paragraph 0066; wherein Gschwind  
correlates the event data [notification event] with the parts [threads] of the  
application]; and

a performance analyzer on a second node, the performance analyzer  
communicatively coupled to the circuitry on the first node to use the correlated  
10 information [Page 5 paragraph 0066; wherein the system will correlate the  
notification events with the parts of the application [Page 5, paragraph 0066] and  
the system uses the notification events to modify power dissipation thereby  
reducing the temperature on the chip, thus using the correlated information [Page  
3, paragraph 0037]].

15 Gschwind discloses a method of detecting temperature of a chip above a  
threshold while running certain applications, thus eliminating high temperature  
situations. Gschwind does not disclose a method of recording a time that the sensors  
output indicates an existence of a power consumption property at a predetermined  
20 value.

Boutaghou teaches a method of controlling the temperature of components that can reach and exceed desirable temperatures wherein if the temperature exceeds a certain threshold an appropriate action is executed to address the temperature level. Boutaghou discloses monitoring the individual components wherein when one of the  
5 components exceed a maximum temperature the amount of time that component has exceeded the max temperature is recorded as P [Col 7 lines 19-26]. The invention Boutaghou is in the same field of endeavor as that of Gschwind in that both inventions are directed toward using a sensor for the purpose of thermal management on a chip. The teachings of Boutaghou further provide the advantage of recording the amount of  
10 time a temperature exceeds a predetermined level as doing so would give the added benefit of power conservation and further prevention of damaging the chip due to excessive temperatures for extended periods of time.

It would have been obvious to one of ordinary skill in the art to combine the  
15 teachings of Gschwind and Boutaghou because they both teach methods of compensating for high temperatures by taking appropriate action due to excess temperature readings by a sensor. One of ordinary skill in the art would be motivated to make this combination of including the ability to record the amount of time an excess temperature exist as taught by Boutaghou, as doing so would give the added benefit of  
20 power conservation and further prevention of damaging the chip due to excessive temperatures for extended periods of time.

**As per claims 2, 10, and 15,** Gschwind in view of Boutaghou teach the invention wherein the power consumption property of the chip comprises temperature, and the temperature comprises a temperature range including one or more temperatures [Col 7 lines 19-26 of Boutaghou; and Page 3 paragraph 0037 of Gschwind].

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**As per claims 3, 11, and 16,** Gschwind in view of Boutaghou teach the invention wherein each sensor output corresponds to a temperature range, and indicates the existence of the one or more temperatures measured at the corresponding sensor output [Col 7 lines 19-26 of Boutaghou; and Page 3 paragraph 0037 of Gschwind].

10

**As per claims 4, 12 and 17,** Gschwind in view of Boutaghou teach the invention wherein the power consumption property of the chip comprises voltage drop, and wherein the voltage drop range includes one or more voltage drops [wherein it would have been obvious to one of ordinary skill in the art to include a voltage drop as the power consumption property of the chip because power consumption and temperature are related and directly proportionate when dealing with the art of chips [Page 2, paragraph 0035; wherein the sensor is power thermal or similar]].

15

**As per claims 5, 13, and 18,** Gschwind in view of Boutaghou teach the invention wherein each sensor output corresponds to a voltage drop range, and each sensor output indicates the existence of a voltage drop measured at the corresponding output [wherein it would have been obvious to one of ordinary skill in the art to include a

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voltage drop as the power consumption property of the chip because power consumption and temperature are related and directly proportionate when dealing with the art of power conservation of chips [Page 3, paragraph 0037]].

5           **As per claims 6-8**, it is directed to the method of steps to implement the system as set forth in claims 14-18. Therefore, it is rejected for the same basis as set forth hereinabove.

10           **As per claims 9-13**, it is directed to an apparatus to implement the system as set forth in claims 14-18. Therefore, it is rejected for the same basis as set forth hereinabove.

15           **As per claims 19-23**, it is directed to a machine-readable medium to implement the method of steps as set forth in claims 14-18. Therefore, it is rejected for the same basis as set forth hereinabove.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MALCOLM D. CRIBBS whose telephone number is 20 (571)272-5689. The examiner can normally be reached on M-F 8AM-430PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Lee can be reached on 571-272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

- 5 Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic
- 10 Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Malcolm D Cribbs  
Examiner  
Art Unit 2115

15 March 11, 2008

/Thomas Lee/  
Supervisory Patent Examiner, Art Unit 2115